COLORADO
Department of Public Health & Environment

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PROGRAM:	Environmental Agriculture Program
EFFECTIVE REGULATION(s):	*Air Quality Control Commission Regulation 2, May 16, 2013*
GUIDANCE No.:	**EAP-1602**
DATE:	May 2016
SUBJECT:	**Housed Commercial Swine Feeding Operation Land Application Odor Control Requirements**

Purpose

To clarify the odor control requirements applicable to Housed Commercial Swine Feeding Operations for land application under Air Quality Control Commission Regulation 2, Odor Emissions, 5 CCR 1001-4 (Regulation No. 2).

Introduction

The Colorado Department of Public Health and Environment's Environmental Agriculture Program (Ag Program) developed this guidance document to assist owners and operators of housed commercial swine feeding operations (HCSFOs) with interpretation and compliance questions related to the odor control requirements for land application of solids, sludge and swine feeding process wastewater (SFPW). This document is guidance only and should be used together with the regulatory requirements included in Regulation No. 2.

Background

Many of the HCSFOs in Colorado are preparing to remove and land apply solids that have accumulated in the waste impoundments at their facilities and are researching a variety of removal methods and land application equipment. Regulation No. 2, Part B requires HCSFOs to employ technology to minimize off-site odor emission to the greatest extent practicable from all aspects of their operations, including land application of solids, sludge and SFPW. There are specific odor control requirements included in the regulation that must be implemented during land application unless an owner/operator can demonstrate that an alternative technology or work practice is more effective (Part B, Section IX.A). The mandatory specific technologies for land application vary depending on the nature of the waste that is being applied.

Common industry practices for removing solids from a SFPW impoundment include, but are not limited to:

1. Removing only the solids/sludge from an impoundment and drying, composting or directly applying to a land application site.

2. Agitating an impoundment to suspend accumulated solids prior to pumping the resulting slurry of solids and SFPW directly to a land application site.

Application of Solids or Sludge

Solids and sludge must be knifed in or injected immediately upon being land applied. In some cases the Ag Program can approve a six hour window before incorporation if a HCSFO has demonstrated that an alternate process will minimize off-site odors to the greatest extent practicable [Part B, Section IX.A.4.g.(2)]. For example, with Ag Program approval, dry solids may be spread across a field prior to

being tilled in instead of being immediately knifed or injected. For the land application of solids and sludge the mandatory technology for reducing odor emissions is incorporation into the soil profile.

Agitating an Impoundment to Suspend and Remove Solids

The mandatory odor control requirements specific to pressure spray systems in Regulation No. 2, Part B.IX.A.4.f prohibit the pressure spray application of a SFPW slurry from an impoundment that has been mechanically agitated to suspend and remove solids. Specifically, when using pressure spray systems like pivots and traveling guns:

- The pump intake must be located near the liquid surface [B.IX.A.f.(2)]; and
- Liquids can only be removed from the last impoundment in a multi-stage impoundment system [B.IX.A.f.(4)].

However, for land application methods that are not pressure-spray systems, SFPW must either:

- Be injected; or
- Pretreated to remove total solids by greater than 65% and volatile fatty acids by greater than 90% or total volatile solids by greater than 60%.

If the SFPW slurry in an impoundment that has been agitated to suspend and remove solids/sludge and can achieve the pretreatment standards listed above, it may be applied through any method that is not considered a pressure-spray system (e.g. with a dribble bar). In addition, pretreated SFPW does not necessarily need to be injected or otherwise incorporated into the soil profile. In this case, the mandatory technology for minimizing off-site odor emissions is pretreatment to remove odor-generating organic compounds prior to land application.

Sampling to meet the pretreatment standards must be conducted according to the Ag Program's current *Total Volatile Solids (TVS) Test Policy for Housed Commercial Swine Feeding Operations*. Alternative methods may need to be developed by an owner/operator and approved by the Ag Program prior to sample collection. If the SFPW slurry in an impoundment that has been agitated does not meet the pretreatment standards, it must be injected (much like solids and sludge).

Additional Requirements

HCSFO owners/operators are require to develop a site specific Odor Management Plan that includes the applicable mandatory requirements and any additional work practices or technologies necessary for the operation to employ technology to minimize to the greatest extent practicable off-site odor emissions from all aspects of their operations. Odor Management Plans may need to be updated prior to removing and land applying solids to incorporate new technologies or methods and these plans must be submitted to the Ag Program for approval.

Please note that there are several other regulatory and permit requirements (nutrient analysis, etc.) that must also be met. In addition, owners/operators may need to update their Operations Plan and/or Swine Waste Management Plan prior to removing and land applying solids. These plans must be submitted to the Ag Program for approval and may be subject to the public notice requirements in Colorado Water Quality Control Commission Discharge Permit System Regulation, 5 CCR 1002-61.

For more information on odor control requirements for the land application of solids, sludge or SFPW from a HCSFO, please contact the Environmental Agriculture Program at 303-692-3520.